14846-37 PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	:	Examiner: TBD
ZIEMANN ET AL.	)	
	:	Group Art Unit: TBD
Application No.: TBD	)	
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Filed: Herewith	)	
	:	
For: NAVIGATION OF TREE DATA STRUCTURES	)	
	)	March 17, 2004

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PETITION TO MAKE SPECIAL UNDER 37 C.F.R. § 1.102

Sir:

It is respectfully requested that the above-captioned patent application, filed herewith, be granted Special Status for accelerated Examination. As set forth in MPEP § 708.02(VIII), such a petition requires: (1) that all claims be directed to a single invention; (2) a pre-examination search; (3) copies of all of the references identified in the search deemed most closely related to the claimed subject matter; (4) a detailed discussion pointing out with particularity how the claimed subject matter is patentable over the references; and (5) the fee set forth in 37 C.F.R. 1.17(h). As presented in more detail below, Applicants have compiled with each of these requirements and respectfully request granting of this petition.

I. APPLICANTS' CLAIMED INVENTION

Applicants' claimed invention includes three independent claims, 1, 7, and 19, directed to either a method or a system for navigating a collection of tree data structures.

Independent Claim 1 relates to a method for navigating a collection of tree data structures stored in a computer-readable database. The method includes constraining a first node of a query tree stored in a computer-readable memory to a first value, and making accessible a first set of nodes of the query tree that are connected to the first node constrained to the first value. The method further includes constraining a second node in the first set of nodes to a second value, and identifying a tree in the collection of tree data structures that contains (1) a first matching node equal in position to the first node and equal to the first value, and (2) a second matching node equal in position to the second node and equal to the second value. Additionally, the method includes accessing data in a select node of the identified tree.

Independent Claim 7 pertains to a method the context of a computer system having a graphical user interface including a display device and one or more input devices. The method is a method for navigating a collection of tree data structures stored in a computer-readable database. The method includes receiving a first value from the one or more input devices to which a first node of a query tree stored in a computer-readable memory is constrained and displaying with the display device a first set of nodes of the query tree that are connected to the first node constrained to the first value. The method further includes identifying a tree in the collection of tree data structures that contains a first matching node equal in position to the first node and equal to the first value and displaying with the display device data in a select node of the identified tree.

Independent Claim 19 relates to a system for navigating a collection of tree data structures. The system includes a database component operative to maintain a database of tree

data structures, a memory component operative to store a query tree, an input component, a display component, and a processing component. The processing component is communicatively connected to the database component, the memory component, the input component, and the display component. The processing component is programmed to perform actions including interpreting a first signal from the input component as an instruction to constrain a first node of the query tree to a first value, and constraining the first node of the query tree to the first value. The processing component also is programmed for transmitting an instruction to the display component to display a first set of nodes of the query tree that are connected to the first node constrained to the first value. Further, the processing component is programmed for communicating with the database component to identify a tree in the database of tree data structures that contains a first matching node equal in position to the first node and equal to the first value. The processing component is programmed to perform actions further comprising transmitting an instruction to the display component to display data in a select node of the identified tree.

II. THE PATENT APPLICATION PRESENTS CLAIMS TO A SINGLE INVENTION

The claims of the patent application filed herewith are directed to a single invention. The current application includes method and system claims, all of which are directed to navigating a collection of tree data structures. Should the Examiner determine that the claims are not directed to a single invention, Applicants will make an election without traverse according to established telephone-restriction practice, MPEP § 708.02(VII).

III. PRE-EXAMINATION SEARCH

A pre-examination search was performed by the professional search firm of Gilman Research Services, LLC ("Gilman") to locate published documents relevant to the inventive concept (the "Search"). Gilman is located at 42 West 24th Street, New York, NY 10010 and can be reached at 212-675-9655. The Search Report at page 2 describes Gilman's searching strategy as well as the USPTO classes and subclasses searched. The Search Report identified the references listed below. For sake of convenience, the references will be identified by the reference numbers also listed below.

Document	Author/Inventor	Date Published/Issued	Reference Number
US 6,014,671	Castelli et al.	1/11/2000	1
US 6,356,920	Vandersluis	3/12/2002	2
US 6,411,957	Dijkstra	6/25/2002	3
US 6,418,446	Lection et al.	7/9/2002	4
US 6,532,467	Brocklebank et al.	3/11/2003	5
US 6,571,249	Garrecht et al.	5/27/2003	6
US 6,578,129	da Silva Jr. et al.	6/10/2003	7
US 6,591,260	Schwarzhoff et al.	7/8/2003	8
US 2002/0083034	Orbanes et al.	6/27/2002	9
US 2002/0143774	Vandersluis	10/3/2002	10
US 2003/0014421	Jung	1/16/2003	11
US 2003/0050931	Harman et al.	3/13/2003	12
US 2003/0088593	Stickler	5/8/2003	13
US 2003/0126151	Jung	7/3/2003	14

US 2003/0131007	Schirmer et al.	7/10/2003	15
US 2003/0167266	Saldanha et al.	9/4/2003	16
Genetic Algorithms for Optimal Logical Database Design	P. Van Brommel et al.	12/13/1994	17
ERDRAW: An XML-based ER-diagram Drawing and Translation	S. Xu et al.		18
A Self-Stabilizing Distributed Branch-and-Bound Algorithm	N. Yahfoufi et al.		19
Model for Worldwide Tracking of Distributed Objects	M. van Steen et al.		20
GiST: A Generalized Search Tree for Database Systems	J. Hellerstein	1/19/1996	21
Tree-Structured Indexes	R. Ramakrishhan		22
Improving Index Performance through Prefetching	S. Chen et al.	12/2000	23

Copies of Gilman Search Report and the identified references are attached hereto.

Nothing in this Petition should be construed as an admission that any reference identified in the Search or discussed herein is available as prior art to the above-captioned application.

IV. DETAILED DISCUSSION OF PATENTABILITY

The claimed subject matter of the above-captioned patent application is patentable over all of the cited references. Applicants provide a detailed discussion in this Section that points out with particularity how the claimed subject matter is patentable over the cited references. As will be discussed, the cited references do not teach or suggest navigating a collection of tree data structures by constraining nodes of a query tree, as required by the claimed invention. For at least this reasons, the claimed invention is respectfully submitted to be patentable over the cited references.

A. References that Relate to One or More Trees, but Do Not Teach or Suggest Navigating a Collection of Tree Data Structures by Constraining Nodes of a Query Tree

1. Reference 17: "Genetic Algorithms for Optimal Logical Database Design," by van Bommel et al.

Reference 17 presents "a genetic algorithm for the optimization of (internal) database structures . . . [and] shows how the solution space of the algorithm can be set up in the form of tree structures (forests). Genetic operators (database transformations) defined in terms of this encoding behave as if they manipulate tree structures." Abstract. The genetic operators disclosed are "Move" and "Promote" mutations and two different crossover operators. *See* Section 4.3. However, Applicants have not found any disclosure relating to navigating a collection of tree data structures by constraining nodes of a query tree, as required by the claims.

2. Reference 6: U.S. Patent No. 6,571,249 (Garrecht et al.)

Reference 6 discloses a system for managing query results, wherein the query results are broken up into manageable sized units that can be easily processed by a typical human

brain. *See* abstract and Col. 6, lines 21-43. The results, which themselves are not trees, are formed into a tree structure wherein the leaf nodes each correspond to a query result. *See* Abstract. This references also discloses a tree data structure at col. 17, lines 31-36 and FIG. 19, which shows each layer of the tree being stored in a separate logical component. Although this reference discloses a tree formed by query results, it does not relate to navigating a *collection* of trees by constraining nodes of a query *tree*, wherein the query is itself a tree data structure.

3. Reference 7: U.S. Patent Application No.: 6,578,129:

Reference 7 relates to optimized virtual memory management ("VMM") for dynamic data types in an embedded processor context. The design choices for the VMM ("search space") are depicted as a group of disjunct trees. *See* col. 15, lines 21-29. Each of the trees represents a design choice and the leaves of a tree represent the design options of the corresponding design choice. *Id.* A selected set of individual leaves, each from a disjunct tree, defines a valid VMM scheme. *Id.* Based on this disjunct tree search space, a "methodology is proposed that takes into account characteristics of the applications to prune the search space and guide the choices of a VMM for data dominated applications." Abstract. Although the search space of this reference is depicted as a set of disjunct trees, navigating a collection of trees by constraining nodes of a query tree, as required by the claims, is not taught or suggested.

4. Reference 21: "GiST: A Generalized Search Tree for Database Systems"

Reference 21 discloses an abstract data type for a generalized search tree, including key methods, queries, searching techniques, and insertion and delete functions for use with the abstract data type. This reference, although pertaining to a generalized search tree, does not teach or suggest navigating a collection of trees, as does the present invention. For instance,

the insert and delete functions disclosed by this reference pertain to inserting and deleting a leaf from a tree, and are not functions performed on a collection of trees. Accordingly, Applicants respectfully submit that this reference does not teach or suggest a method of navigating a collection of trees by constraining nodes of a query tree, as required by the claims.

B. Additional References that Pertain to Trees, but Do Not Teach or Suggest Navigating a Collection of Tree Data Structures by Constraining Nodes of a Query Tree

References 1, 3, 4, 5, 9, 12, 16, 19, 20, 22, and 23 are also understood to relate to trees, but not to navigating a collection of tree data structures by constraining nodes of a query tree.

Reference 1 discloses a method for representing and retrieving multi-dimensional data such as large satellite images. Abstract. The data may be broken up into a view element hierarchy data structure. Col. 8, lines 64-66. Reference 3 pertains to organizing nodes within *a* tree structure. Reference 4 relates to a method for grouping of dynamic data using XML, wherein an input Document Object Model ("DOM") tree is used to create an output DOM tree. Abstract. Reference 5 discloses a method for selecting node variables in a binary decision tree structure. Reference 9 relates to viewing information having hierarchical relationships and does not teach or suggest constraining nodes of a query tree. Reference 12 receives content as input, converts the content into a Document Object Model ("DOM") tree, and translates the DOM tree into a markup language that is formatted for display. Reference 16 discloses taking plain text as input and converting it into a tree structure based upon its grammatical components. Reference 19 relates to a self-stabilizing distributed branch-and-bound algorithm which finds the optimal solution in a search space decomposed into a tree structure. *See* Section 1, Introduction.

Reference 20 discloses a model for worldwide tracking of distributed objects based upon a worldwide distributed search tree that adapts dynamically to individual migration patterns of constituent objects. Abstract. Reference 22 discusses searching a binary tree using an index file. *See* page 3. Reference 23 pertains to improving binary search tree index performance using a prefetching technique.

Applicants respectfully submit that none of these references teach or suggest navigating a collection of trees by constraining nodes of a query tree, as required by the claims.

C. The Remaining References are Deemed Unrelated to Navigating a Collection of Tree Data Structures by Constraining Nodes of a Query Tree

The remaining cited references also have not been found to teach or suggest navigating a collection of trees by constraining nodes of a query tree, as required by the claims.

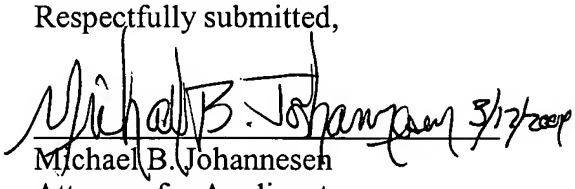
V. CONCLUSION

In view of the foregoing, Applicants respectfully submit that all claims are patentable. Further, Applicants' have met all of the requirements for accelerated examination set forth in 37 C.F.R. § 1.102 and detailed in MPEP § 708.02(VIII). Accordingly, Applicants respectfully request this case be made special for expedited examination. Please charge the required fee set forth in 37 C.F.R. § 1.17(h), estimated to be $130.00, to Deposit Account No. 501358.

Applicants' undersigned attorney may be reached by telephone at (973) 597-2500.

All correspondence should continue to be directed to our address listed below.

Respectfully submitted,



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